**COURSE SPECIFICATION**

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| This Course Specification provides a concise summary of the main features of the course and the learning outcomes that a typical student might reasonably be expected to achieve and demonstrate if he/she takes full advantage of the learning opportunities that are provided. It should be cross-referenced with the programme specification. |

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| Baghdad University | 1. Teaching Institution |
| College of Engineering/Department of Electrical Engineering | 2. University Department/Centre |
| Math I | 3. Course title/code |
| Electrical Engineering | 4. Program(s) to which it contributes |
| Internal | 5. Modes of Attendance offered |
| First Year Class | 6. Semester/Year |
| 120 | 7. Number of hours tuition (total) |
| 2014 | 8. Date of production/revision of this specification |
| 9. Aims of the Course | |
| Build strong electrical engineers with powerful mathematic tools serving to solve problems in Math, Electronics, Power and all other engineering courses. | |
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| 10· Learning Outcomes, Teaching ,Learning and Assessment Method |
| 1. Knowledge and Understanding   A1. Understanding academic texts and try to solve the problems in the end of each chapter.  A2. Learn how to reflect the theoretical functions and definitions to practical applications.  A3. Finding and understanding information about mathematics problems and theoties. |
| B. Subject-specific skills  B1. Solving some specific problems with different ideas related to the subject courses.  B2. Explore the web pages that concerned on Math.  B3. Manipulating some powerful software like Maple and Microsoft Math in order to solve some integrals and graph delicate polar functions.  B4. Making an oral presentation |
| Teaching and Learning Methods |
| Lecturing and Exercises and Homework. |
| Assessment methods |
| Exams |
| C. Thinking Skills  C1. Being able to form personal opinions about issues through attempting to solve different mathematic problems. |
| Teaching and Learning Methods |
| Lecturing & Class discussions |
| Assessment methods |
| Exams that involve problem-solving skills and critical thinking skills |

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| D. General and Transferable Skills (other skills relevant to employability and personal development)  D1. Effective communication to understand and imagine the idea behind the problem want to be solved.  D2. Team work |

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| 11. Course Structure | | | | | |
| Assessment Method | Teaching  Method | Unit/Module or Topic Title | ILOs | Hours | Week |
| Exam | Lecturing, Discussions & Exercises | Determinant |  | 4 | 1 |
| Exam | Lecturing, Discussions & Exercises | Matrices |  | 4 | 2 |
| Exam | Lecturing, Discussions & Exercises | **Transcendental functions:**  **Inverse Functions**  **Natural logarithm** |  | 4 | 3 |
| Exam | Lecturing, Discussions & Exercises | **General Form: ax & loga x**  **Growth and Decay Functions** |  | 4 | 4 |
| Exam | Lecturing, Discussions & Exercises | **Growth Rates Functions**  **Trigonometric Functions and Its Inverses** |  | 4 | 5 |
| Exam | Lecturing, Discussions & Exercises | **Hyperbolic Functions and its Inverses.** |  | 4 | 6 |
|  |  | New Year Holiday |  |  | 7 |
|  |  | Exam (1) |  | 2 | 8 |
| Exam | Lecturing, Discussions & Exercises | Techniques of Integration |  | 2 | 8 |
| Exam | Lecturing, Discussions & Exercises | Integration Laws |  | 4 | 9 |
| Exam | Lecturing, Discussions & Exercises | Improper fraction technique |  | 4 | 10 |
| Exam | Lecturing, Discussions & Exercises | Trigonometric techniques. |  | 4 | 11 |
| Exam | Lecturing, Discussions & Exercises | Hyperbolic function techniques |  | 4 | 12 |
|  |  | Mid-Year Break |  |  | 13 |
|  |  | Exam (2) |  | 2 | 14 |
| Exam | Lecturing, Discussions & Exercises | Integral with special cases |  | 2 | 14 |
| Exam | Lecturing, Discussions & Exercises | Improper Integral type I and type II |  | 4 | 15 |
| Exam | Lecturing, Discussions & Exercises | Further Application of Integration |  | 4 | 16 |
| Exam | Lecturing, Discussions & Exercises | Conic sections |  | 4 | 17 |
|  |  | Exam (3) |  | 2 | 18 |
| Exam | Lecturing, Discussions & Exercises | Polar functions |  | 2 | 18 |
| Exam | Lecturing, Discussions & Exercises | Polar functions and Cartesian coordinates |  | 4 | 19 |
| Exam | Lecturing, Discussions & Exercises | Graphing Polar functions |  | 4 | 20 |
| Exam | Lecturing, Discussions & Exercises | Area and Length in Polar function |  | 4 | 21 |
| Exam | Lecturing, Discussions & Exercises | Surfaces and quadrature in Space |  | 4 | 22 |
|  |  | Exam (4) |  | 2 | 23 |
|  |  | Vectors in space |  | 2 | 23 |
| Exam | Lecturing, Discussions & Exercises | Dot Product and  Cross product |  | 4 | 24 |
| Exam | Lecturing, Discussions & Exercises | Lines and Planes in Space |  | 4 | 25 |
| Exam | Lecturing, Discussions & Exercises | Vector Valued Functions and Motion in space |  | 4 | 26 |
|  |  | T, N, B vectors |  | 4 | 27 |
|  |  | Final Exam |  | 3 | 28 |

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| 12. Infrastructure | |
| 1. Thomas - Calculus Including 2nd Order Differential Equations (Addison-Wesley, 11th edition, 2005). 2. Stroud - Engineering Mathematics 5th edition. | Required reading:  · CORE TEXTS  · COURSE MATERIALS  · OTHER |
| Internet links related to the topics discussed in the book and class. | Special requirements (include for example workshops, periodicals, IT software, websites) |
| None | Community-based facilities  (include for example, guest  Lectures , internship , field studies) |

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| 13. Admissions | |
| ---------- | Pre-requisites |
| 50 | Minimum number of students |
| 60 | Maximum number of students |